

# Work Order ID 61113

Friday, August 06, 2010 12:37:49 PM



Page 1

Item ID: D205-634-041

Accept



Setup Start



Revision ID:

Stop



Item Name: Replacement Skidtube

Start Date: 8/6/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 8/20/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: *[Signature]*

Date: *10-8-06*

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D2580	Rev D

100

0.00



DC

DOCUMENT CONTROL

Memo

0.00

Document Control

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG002

*[Signature]* *10-8-06*

110

0.00



CNC Bend 1

BENDING MACHINE - SKIDTUBES

Memo

0.00

CNC Delta 100 Bender

1-Bend as per program D2580.C on CNC Bender and Folio 16

2-Cut tubes as per Dwg. D2580

3- scribe batch# in aft end of tube

*[Signature]* *10-08-19*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

120

0.00



Skidtubes

Memo

0.00

Skidtubes

1- Deburr ends

2- C'sink holes as per dwg without cutting fluid

3- Prepare tube for welding, remove alodine as required.

4- Scribe batch number insied aft end of tube.

✓ - 8E10/08/25

130

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

810/08/25

②0

W/O:		WORK ORDER CHANGES					
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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

140

0.00



Skidtubes

Memo

0.00

Skidtubes

1-Weld step D2576 as per Dwg. D2580 and QSI 004

A/R□□□ Aluminum Rod

*M114877 BE 10/08/26*

2-Prep per QSI 005 and weld crossbolt spacers D2579 as per Dwg. D2580, QSI 004.

For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill

A/R□□□ Aluminum Rod

*M114877 BE 10/08/26*

3-Grind welds as per Dwg D2580 Grind flush ridge made from bending

4-Drill holes for wearplates using DT 8217 &amp; DT8937 Open holes to 19/64", adjust stopper not to hit web. Deburr

5-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2580. Deburr holes

6-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Deburr

7-Drill pilot holes for Tow ring using DT8091, open to .640" and Deburr

*BE 10/08/30*

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

180

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

Powdercoat

Memo

0.00

Powder Coating

START TIME: 11:05  
OVEN TEMPERATURE: 325  
FINISH TIME: 11:35

m 10 09 01 7

190

QC3- Inspect Part Finish

0.00

QC

Memo

0.00

Quality Control

8/10/09/13

FC

W/O:		WORK ORDER CHANGES					
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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

200

0.00

⇒ 10/09/13



0.00

HandFinish

Memo

Hand Finishing

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates

A/R ☐ ☐ Sikaflex-291 ☐ 11/11/13 ☐

Sikaflex expire date: 11/10

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive

A/R ☐ ☐ Sikaflex-291 ☐ 11/15/14 ☐

Sikaflex expire date: 11/14

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

Batch: 11145028

W/O:		WORK ORDER CHANGES					
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Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210  QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024	0.00  0.00							
220  Packaging Packaging	Packaging  Memo Identify and pack for shipping as per PPPD205-634-041 Location: _____ PPP Rev: <u>PPC 61112</u>	0.00  0.00							
230  QC Quality Control	QC21- Final Inspection - Work Order Release  Memo	0.00  0.00							  MF 10-9-16

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 1

Work Order ID: 61113

Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube




Start Date: 8/6/2010

Required Date: 8/20/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ  
 IPP Rev P 10.02.19 per PAR09-043 EC verified by:DD  
 IPP Rev. O 06.02.28 Added paperwork EC  
 IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2580-1  205 Skidtube bent detail		Manufactured	No			110	Each	4.0000	1	1			
<div> <div>Location</div> <div>Loc Qty</div> <div>Loc Code</div> </div>													
<div> <div>LG</div> <div>1</div> <div></div> </div>													
<div> <div>57028</div> <div>1</div> <div></div> </div>													
<div> <div>ST046</div> <div>3</div> <div></div> </div>													
<div> <div>59856</div> <div>2</div> <div></div> </div>													
<div> <div>59913</div> <div>1</div> <div></div> </div>													
D2576-3  Step (maching detail)		Manufactured	No			140	Each	84.0000	1	1			
<div> <div>Location</div> <div>Loc Qty</div> <div>Loc Code</div> </div>													
<div> <div>LG</div> <div>84</div> <div></div> </div>													
<div> <div>46661</div> <div>36</div> <div></div> </div>													
<div> <div>52215</div> <div>48</div> <div></div> </div>													
D2579  Crossbolt Spacer		Manufactured	No			140	Each	327.0000	20	20			
<div> <div>Location</div> <div>Loc Qty</div> <div>Loc Code</div> </div>													
<div> <div>LG</div> <div>327</div> <div></div> </div>													
<div> <div>57052</div> <div>5</div> <div></div> </div>													
<div> <div>57348</div> <div>4</div> <div></div> </div>													
<div> <div>58433</div> <div>2</div> <div></div> </div>													
<div> <div>59113</div> <div>182</div> <div></div> </div>													
<div> <div>60845</div> <div>134</div> <div></div> </div>													

864191 MS 10-08-19

BE 10/08/26

20 BE 10/08/26

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Page 2

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Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube

Start Date: 8/6/2010

Required Date: 8/20/2010

Start Qty: 1.00

Required Qty: 1.00

D2855

Manufactured No

200

Each

81.0000

1

1



Cap



HL 10/09/08

Location

Loc Qty

Loc Code

FP6

1

56613

1

ST026

80

50513

1

50770

28

51539

2

53791

49

x1

AN3-5A

Purchased

No

200

Each

1,542.000

2

2



Bolt



HL 10/09/08

Location

Loc Qty

Loc Code

ST350

1542

105057

542

115016

500

115371

500

x2

AN960JD10L

NAS1149D0332J

Purchased

No

200

Each

2,633.000

2

2



Washer



HL 10/09/08

Location

Loc Qty

Loc Code

ST348

2633

110985

2633

x2

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Shop Packet Print

Page 2

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Parent Item Name: Replacement Skidtube

Start Date: 8/6/2010

Required Date: 8/20/2010

Start Qty: 1.00

Required Qty: 1.00

ALS7-1032-130 Purchased

No

200

Each

878.0000

50

50



Insert



21 10/09/08

Location

Loc Qty

Loc Code

FP

861

1114723

X50

115079

861

ST282

17

113238

17

AN3C4A

Purchased

No

200

Each

1,889.000

50

50



BOLT



21 10/09/08

Location

Loc Qty

Loc Code

ST350

1889

114108

14

1115438

X50

114416

12

114523

2

114941

861

115300

1000

AN960C10L

NAS1149C0332

Purchased

No

200

Each

29.0000

50

50



washer



21 10/09/08

Location

Loc Qty

Loc Code

ST245

29

107534

29

X50

1115000

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Required Date: 8/20/2010

Start Qty: 1.00



Required Qty: 1.00

D3566-13      Manufactured      No      200      Each      33.0000      1      1  
            yl 10/09/13  
 Gasket

Location	Loc Qty	Loc Code
FP	2	
53461	2	
FP012	31	
59661	23	<u>yl</u>
60209	8	

D3566-5      Manufactured      No      200      Each      36.0000      1      1  
            yl 10/09/13  
 Gasket

Location	Loc Qty	Loc Code
FP	22	
60869	22	<u>yl</u>
FP015	14	
59158	14	

D3566-1      Manufactured      No      200      Each      30.0000      2      2  
            yl 10/09/13  
 Gasket

Location	Loc Qty	Loc Code
FP	13	
60857	13	
FP015	17	
57715	2	
59126	3	<u>B61656</u>
60202	12	<u>x2</u>

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Start Date: 8/6/2010



Required Date: 8/20/2010

Start Qty: 1.00

Required Qty: 1.00

D3564-11	Manufactured	No	200	Each	8.0000	1	1
							<u>xl 10/09/13</u>
Wearshoe							

			<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>		
D3564-13	Manufactured	No	FP019	8	B 60302	1	<u>xl</u>
			59941	8			
Wearshoe							<u>xl 10/09/13</u>

			<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>		
D3564-9	Manufactured	No	FP17	31		1	<u>xl</u>
			(59660)	19			
Wearshoe			60862	12			<u>xl 10/09/13</u>

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP	1	
55334	1	
FP019	23	
59201	10	
(60236)	13	

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Start Date: 8/6/2010

Required Date: 8/20/2010

Start Qty: 1.00

Required Qty: 1.00

D3564-5

Manufactured No

200

Each

27.0000

1

1



Wearshoe



41 10/09/13

Location

Loc Qty

Loc Code

FG

1

34806

1

FP19

2

57525

1

58709

1

FP-19

24

59157

11

60868

13

41

D2594-3

Manufactured No

200

Each

379.0000

16

16



O-Ring, 205 Skidtube



41 10/09/13

Location

Loc Qty

Loc Code

FP

379

55546

19

58191

12

59358

348

346114

416

D2594-1

Manufactured No

200

Each

419.0000

16

16



Plug, 205 Skidtube



41 10/09/13

Location

Loc Qty

Loc Code

FP

183

42807

112

55002

71

FP14

236

58434

47

59110

189

416

Friday, August 06, 2010 12:37:53 PM

Shop Packet Print

Page 6

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



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CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

**RELEASED**  
07-06-28 *[Signature]*

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

SHOP COPY  
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SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. *4113*  
*[Signature]*

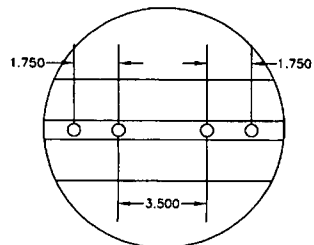
**GENERAL NOTES:**

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL  $\varnothing 0.297$  HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:  
SEE NOTES ON  
PAGE 2 FOR D2580-041 AND  
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

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07-06-28-11

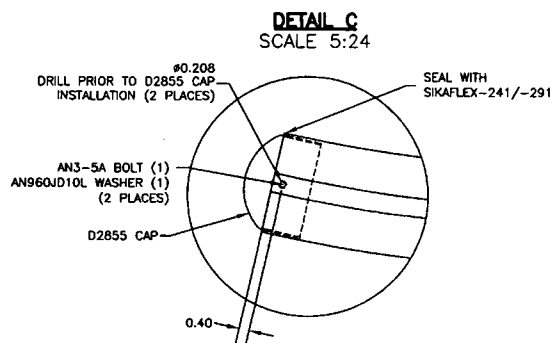
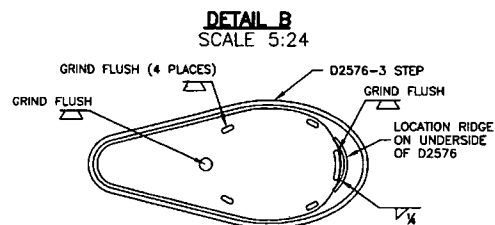


Diagram of a wheel assembly with labels:

- D2579 SPACER
- D2596 WEB (REF)
- ALS7-1032-130 (REF) (TYP 50 PLACES)
- AFTER PERFORM
- 1. CHA
- 2. INS
- 3. WEL
- 4. C'B

AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO #0.437 X 1.00 DEEP

**D2580-041 NOTES**

- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

[illegible]

Technical drawing of a road cross-section showing a 1.4% grade and a 20.0m radius curve. It includes dimensions for hole placement: 13.4m and 32.0 ± 1.0m from tangent points, with a 1.0m offset. A 11m high embankment is shown on the right.

**D3566-01 ASSEMBLY DETAIL**

WELD AS PER DETAIL B

BLACK ANTI-SKID TO 0.5 ABOVE LOCATION RIDGE

BLACK ANTI-SKID TOP OF STEP TO 0.5 ABOVE BOTTOM EDGE

0.5 1.5 1.5 D P P P P P P P

REFER TO DETAIL C

D3566-1 D3566-5 D3566-1 D3566-13



D3564-11 D3564-5 D3564-9 D3564-13

AN3C4A BOLT (1)  
AN960C10L WASHER (1)  
(50 PLACES)

DESIGN	JJ	DRAWN BY	
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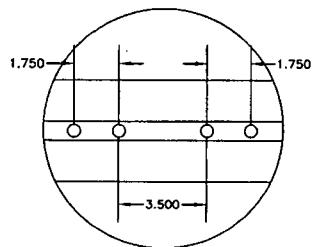
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DATE	07.02.27

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MARKHAM, ONTARIO, CANADA

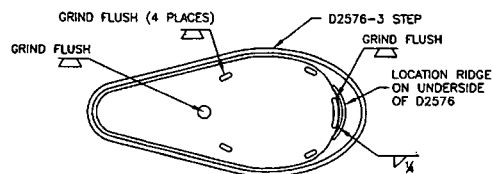
DRAWING NO.	REV. D
D2580	SHEET 2 OF 3
TITLE	SCALE
205 SKIDTUBE ASSEMBLY	1:24

**DETAIL E**  
SCALE 5:24

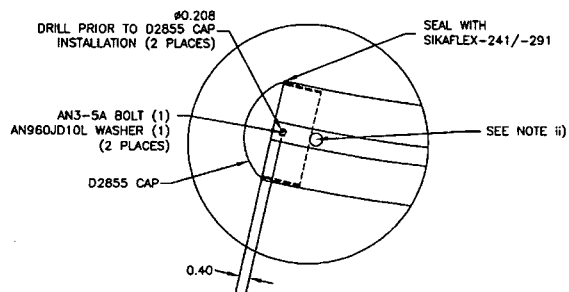


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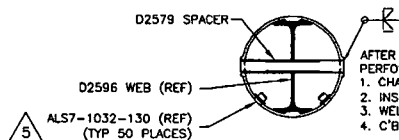
**DETAIL F**  
SCALE 5:24



**DETAIL G**  
SCALE 5:24

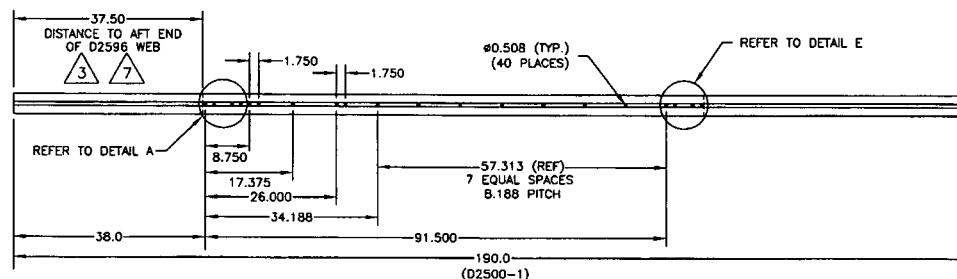


**SECTION H-H**  
SCALE 5:24

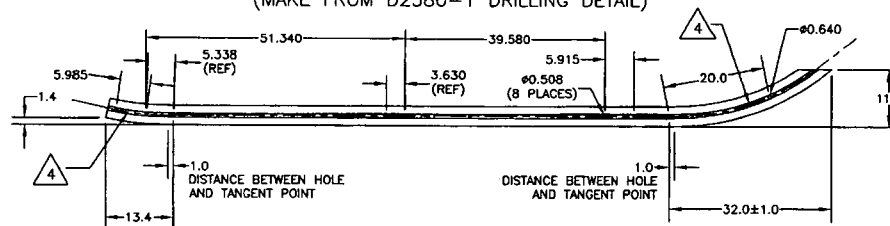


- AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
  2. INSERT D2579 SPACER (20 PLACES)
  3. WELD INTO PLACE AND GRIND FLUSH
  4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

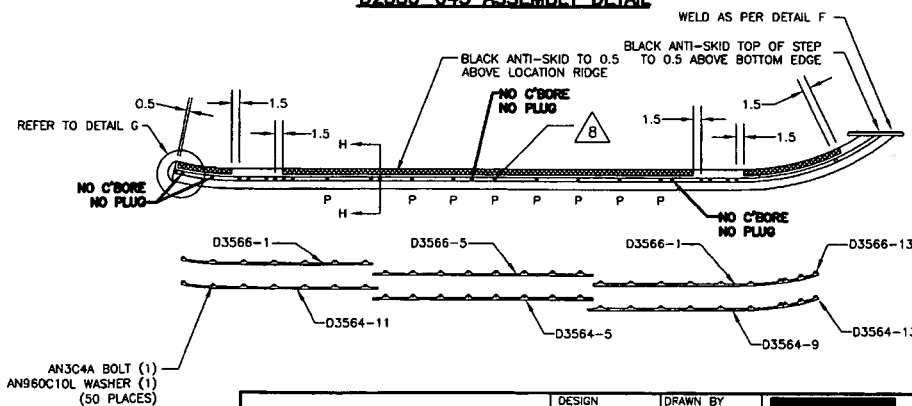
**D2580-1 DRILLING DETAIL**



**D2580-5 BENDING AND CUTTING DETAIL**  
(MAKE FROM D2580-1 DRILLING DETAIL)



**D2580-045 ASSEMBLY DETAIL**



**D2580-045 NOTES**

- FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB  
POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

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CHECKED H	APPROVED H	DRAWING NO. D2580	REV. D SHEET 3 OF 3
DATE 07.02.27	TITLE 205 SKIDTUBE ASSEMBLY	SCALE 1:24	



NO. 238

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barclay Elliott  
Job number: 61352  
Part number: D205-634-041  
Description: 205 skid tube  
Welding Process: Tig[☒] Mig[ ]  
Base material: Aluminium  
Current: AC[☒] DC[ ]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[ ]  
Penetration: pass[☒] fail[ ]

UNACCEPTABLE

Cracks: pass[☒] fail[ ]  
Undercut: pass[☒] fail[ ]  
Pin holes: pass[☒] fail[ ]  
Overlap (cold lap): pass[☒] fail[ ]  
Porosity (surface): pass[☒] fail[ ]  
Coloration: pass[☒] fail[ ]

Qualifier P. D. D. Date of Test Coupon 10.08.25  
Welder Barclay Elliott Date of Test Coupon 10.08.25

The above named individual is qualified in accordance with AWS D17.1.2001 to weld